

# STUDY OF TECHNOLOGICAL PARAMETERS OF DRY EXTRACTS FOR CREATION OF HARD GELATIN CAPSULES FOR THE TREATMENT OF ARTERIAL HYPERTENSION ASSOCIATED WITH UROLITHIASIS

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**Introduction.** Prospects for the development of pharmaceutical technology are closely linked to the impact of scientific and technological progress. On the basis of scientific discoveries, new technological processes are created, which increase labor productivity and improve product quality. Hard capsules – hard or soft shell drugs of various shapes and contents. The capsules contain one dose of active substance and are intended mainly for oral administration.

Based on the analysis of literature data and own research, it is important to develop a technology of combined drug, offered as a diuretic for the treatment of hypertension based on available raw materials: corn and achyranthes roots and active pharmaceutical substance.

**Aim of the research** is the development of composition, technology and research of dry extracts composition of corn and achyranthes roots with rutin in hard gelatin capsules for the treatment of arterial hypertension associated with urolithiasis.

**Materials and methods.** Information–search, information–analytical, organoleptic. The objects of the study are dry extracts of corn and achyranthes roots, the active pharmaceutical substance rutin and granules and hard gelatin capsules made on their basis.

**Obtained results.** Dry extracts are the most rational form of processing of plant raw materials, because when they are obtained, the stability and pharmacological activity of biologically active substances is not disturbed. However, the physicochemical and technological characteristics of plant extracts cause some difficulties in the production of drugs, which limits their widespread use. One of the options to solve the problem may be the reception of granulation of plant extracts with excipients.

The study of technological and physicochemical properties of the obtained dry extracts, as well as the substance rutin, which is part of the phytocomposition, was studied in accordance with the requirements of State Pharmacopoeia of Ukraine 2.0.

It is established that all investigated substances have unsatisfactory technological properties. Dry extract of corn is characterized by very poor flowability and low value of bulk density. The flowability of achyranthes dry extract is slightly higher, but also cannot be considered satisfactory.

Studies to determine the moisture content of dry extracts and rutin substances have shown compliance with the general article of State Pharmacopoeia of Ukraine – no more than 5 % moisture. According to the obtained data, the moisture content was  $3.42 \pm 0.32$  %,  $3.67 \pm 0.41$  % and  $2.45 \pm 0.24$  %. The flow rate is satisfactory for further use in the manufacture of solid dosage forms.

**Conclusions.** Technological parameters of dry extracts for creation of hard gelatin capsules are studied. It is established that all of them have unsatisfactory technological properties.

## STUDY OF ANTIMICROBIAL ACTIVITY GALINSOGA PARVIFLORA

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**Introduction.** Galinsoga small-flowered (small-flowered) is an annual herbaceous plant of the aster family. The homeland of the galinsoga is South America, from where it was imported to Europe, after which it quickly spread throughout the territory, including Ukraine. They show different types of biological activity. In the extracts of the herb Galinsoga were identified lactic, succinic, tartaric and ascorbic acids, proteins, polysaccharides. The plant in folk medicine of many countries is used to treat diseases of the oral cavity, as a hemostatic, antihypertensive, hemostatic agent, for the treatment of dermatological diseases, scurvy and goiter.

**The aim of the study.** Study of antimicrobial activity of juice from the herb Galinsoga small-flowered in the conditions of in vitro and evaluation of the prospects of creating a drug with antimicrobial action based on this substance.

**Materials and methods.** Antimicrobial activity was studied by double serial dilutions in a liquid nutrient medium - meat-peptone broth - for bacterial cultures and Saburo broth - for a culture of a fungus of the genus *Sandida*. The microbial load was  $10^6$  microbial cells per 1 ml of medium. The maximum dilution of samples in vitro in the absence of culture growth was estimated as the minimum inhibition of microbial growth concentration (IPC). 70% ethyl alcohol was used as a solvent, the antimicrobial activity of which was eliminated by dilution to an inactive concentration and using ethyl alcohol as a control. References of microorganisms from the American typical collection of cultures were used in the experiment: *Staphylococcus aureus* ATCC 25923, *Escherichiacoli* ATCC 25922, *Pseudomonasaeruginosa* ATCC 9027, *Bacillus subtilis* ATCC 6633 and a fungus of the genus *Candida* 8585.

**Obtained results.** According to the results of the experiments, samples of the juice of the small-flowered Galinsoga grass showed no antimicrobial activity against gram-negative bacteria *E. coli* and *P. aeruginosa*, as evidenced by signs of growth of these cultures of microorganisms in the first tubes with dilutions of samples, which was confirmed by smear microscopy. No activity was detected against the spore-forming culture of *Bacillus subtilis*. At the same time, insignificant antimicrobial activity of the samples against the culture of *Staphylococcus aureus* and *Candida albicans* was detected.

**Conclusions.** Detection of antimicrobial activity of small-flowered Galinsoga juice against *Staphylococcus aureus* and *Candida* fungi requires further studies using cultures of other gram-positive bacteria, including those that are important as etiological factors in infectious pathology, including clinical strains. Simultaneous